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SB ALL @ AMSAT $ANS-076.01
UOSAT 14 & 15 STATUS REPORT

HR AMSAT NEWS SERVICE BULLETIN 076.01 FROM AMSAT HQ
SILVER SPRING, MD MARCH 17, 1990
TO ALL RADIO AMATEURS BT

UOSAT-OSCAR-14 and UOSAT-OSCAR-15 REPORT #007 15-Mar-90

** UoSAT-OSCAR-14 **

Attitude Control and Stabilization

Manueuvers prior to gravity gradient stabilization have taken somewhat longer than expected. The most recent delays were caused by the need to add digital filters to the attitude determination software to remove unwanted noise from the magnetometer readings. The filters have been installed, and a new version of the FORTH diary will be uploaded soon.

High Speed Downlink Tests

The UoSAT Command Station has been conducting limited experiments with the 9600 bits/second Frequency Shift Keyed (FSK) downlink on UO-14. These tests have been quite successful, doubling the highest digital link speed previously used on any OSCAR satellite (4800 bps is routinely used on UO-11).

Data transmitted during these tests has been either asynchronous telemetry from the Very Large Scale Integrated telemetry system or continuous streams of 1 bits (no data at all). The "stuck ones" tests are very useful because of the scramblers in the modulator and demodulator. The 1's are scrambled and transmitted as pseudorandom data over the RF link. The groundstation demodulators then lock onto this data, descramble it, and reproduce the continuous 1's. Any 0's in the demodulated output data stream are caused by bit errors on the communication link, and the link bit error rate (BER) can be calculated from the frequency of such transitions.

BER tests are to be scheduled into the DIARY in aid of those trying to test their FSK receive systems. The first scheduled tests were scheduled for the morning passes over the East Coast of the US on 15 March.

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** UoSAT-OSCAR-15 **

The team at Stanford has succeeded in detecting local oscillator (LO) leakage from the UO-15 command receiver. The weak signals were first detected on March 10 and then again on March 11. Roy Long, leading the Stanford Research Institute team on the recovery attempt, said that there is no doubt that the signal comes from UoSAT-15. It is weaker than the corresponding signal on UoSAT-14, as expected from prelaunch measurements.

Each UoSAT carries three receivers: a fixed-frequency command receiver and two communications receivers with switchable frequency. Efforts will now concentrate on monitoring one of the switchable frequency receivers. If one of these receivers is heard, commands will then be sent to change the receiver frequency, which should cause a corresponding change in the LO frequency. Observation of changed LO frequency will confirm that the satellite's command system is basically healthy.

The work at Stanford is very time consuming, requiring azimuth and elevation control of the huge Stanford 150 diameter dish to within tight limits. Data are collected for only a few seconds, followed by hours of post-processing.

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SB ALL @ AMSAT $ANS-076.02
DOVE-OSCAR-17 OBC CRASHES

HR AMSAT NEWS SERVICE BULLETIN 076.02 FROM AMSAT HQ
SILVER SPRING, MD MARCH 17, 1990
TO ALL RADIO AMATEURS BT

DOVE-OSCAR-17's On-board Computer (OBC) Experiences A Crash

On Wednesday March 14, reports were received that an On-Board Computer (OBC) crash had occurred on DOVE-1. Since then, only a continuous carrier with packet "flags" has been heard on the DO-17 downlink of 145.825 MHz. At the present time it has not been determined exactly how this computer anomaly occured. Attempts are being made to perform a reset of the DOVE-1 CPU.

At the present time the MICROSAT Engineering Team does not feel this condition poses any threat to the well-being of DO-17. After several command tests, the anomalous situation will be better understood. If a reset attempt is succesful, the S band transmitter will be commanded on and two meter transmissions will be suspended until after the next software upload is completed. Data reports from S band receiving stations will be crucial during the period following the reset. Stations equipped to receive 1200 bps PSK on 2400.1 - 2400.3 MHz should contact Courtney Duncan, N5BF, or Bruce Rahn, WB9ANQ via the AMSAT-NA Operations Net or AMSAT-NA Headquarters. Also, data reports from shortly before the CPU crash will be appreciated. For information on submitting reports, see the following ANS bulletin concerning the Microsat Data Archive.

Stay tuned to AMSAT Nets and ANS bulletins for further updates.

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SB ALL @ AMSAT $ANS-076.03
MICROSAT DATA ARCHIVE ESTABLISHED

HR AMSAT NEWS SERVICE BULLETIN 076.03 FROM AMSAT HQ
SILVER SPRING, MD MARCH 17, 1990
TO ALL RADIO AMATEURS BT

AMSAT-NA Vice President for Operations, Courtney Duncan, N5BF, announces the appointment of Reid Bristor, WA4UPD, Technical Coordinator for Satellite Data Archiving.

Reid has set up a database using DEC computers and large, removable fixed disk drive systems and is now ready to begin receiving data for collating and storage. Microsat files collected in either KISS or ASCII mode are acceptable. File naming is not yet standardized so any convention is ok as long as submitters include a note explaining how their personal naming convention works. A standard format for file naming and file contents will be published soon after which all submissions must conform. At this time, all Microsat datafiles are welcome.

This archive will be used to keep records on the Microsat spacecraft over short and long term periods and to allow various spacecraft parameters and trends to be analyzed. Clearly, any such research will benefit from the most complete dataset possible, thus, it is very important that everyone with captured data send copies to Reid for inclusion in the master archive. Command and monitoring station operators are very dedicated individuals but they all have careers, families, and other

responsibilities and have not been able to take data for every visibility of every satellite since launch. Also, each satellite is only visible a small percentage of the time from any given location. There is no single, complete collection of Microsat telemetry data; AMSAT is counting on the many amateur satellite users around the world who have been logging data for the last two months to begin this collection. There is a good chance that the data submitted by any individual is unique and therefore very important to the collection. Submissions are solicited from North and South America, Africa, Europe and Asia, Australia and Oceania, and any other locations for all times since the Microsat launch.

As the system developes, it will be expanded to include other amateur satellites besides the Microsats. Submission standards will be published and amateurs wishing access to the data for analysis and research will be accomodated.

Reid is prepared to take submissions by mail in any of the IBM-PC 5.25 or 3.5 inch disk formats, Commodore-64 1541, 1571, and 1581 formats, and DEC RX-50 and RX-01/2 formats (as used on the Rainbow 100 and PRO series DEC systems). Those with disks in Apple, MacIntosh, or any other formats not listed are asked to write to Reid at the address given below to work out the details of data submission. Files may be compressed using PKARC. Direct, electronic submission of data may be instituted in the future if it is deemed practical.

Data diskettes, inquiries, comments, and other correspondence concerning the Microsat / Amateur Satellite Data Archive may be directed to:

Reid Bristor, WA4UPD @ N4JLR
4535 Deerwood Trail
Melbourne, Florida 32935

Reid also participates regularly in the Amsat-NA Operations Net on AO-13 and can be contacted there.

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SB ALL @ AMSAT $ANS-076.04
AO-10 & 13 TRANSPONDER SCHEDULES

HR AMSAT NEWS SERVICE BULLETIN 076.04 FROM AMSAT HQ
SILVER SPRING, MD MARCH 17, 1990
TO ALL RADIO AMATEURS BT

AO-13 Transponder Schedule to 09May90

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         Mode-B  : MA 000 to MA 165
         Mode-JL : MA 165 to MA 195
         Mode-S  : MA 195 to MA 200
         Mode-BS : MA 200 to MA 205
         Mode-B  : MA 205 to MA 256
         Omnis   : MA 240 to MA 060

    BLON = 207.4  and  BLAT = 1.7   for 19Mar90
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The Mode-B beacon will be ON from MA 195 to MA 200. However from 21Feb90 to 21Mar90 there will be an OFF period from MA 20 to MA 90 due to solar eclipses affecting AO-13. The length of the eclipses vary from 12 to 89 minutes. Only the Mode-S transponder & the Mode-B beacon will be ON from MA 195 to MA 200.

AO-10 is currently experiencing solar eclipses during major portions of it orbit and until further notice its transponder is not available for use.

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SB ALL @ AMSAT $ANS-076.05
OPERATIONS NET SCHEDULE

HR AMSAT NEWS SERVICE BULLETIN 076.05 FROM AMSAT HQ
SILVER SPRING, MD MARCH 17, 1990
TO ALL RADIO AMATEURS BT

AMSAT-NA Operations Net Schedule Announced

AMSAT Operations Nets are planned for the following times. Mode B nets are conducted on an AO-13 downlink frequency of 145.950. Mode J/L nets are conducted on an AO-13 downlink frequency of 435.970. All nets in the current cycle occur on Saturday U. S. time.

Date UTC	Time	Phs	Mode	NCS
25 Mar 90	0400	200	B	WD0E/WA4UPD
01 Apr 90	0400	118	B	N5BF
07 Apr 90	1300	212	B	N5BF
15 Apr 90	0210	168	J/L	N5BF
22 Apr 90	0400	127	B	N5BF
28 Apr 90	1300	221	B	N5BF
06 May 90	0145	168	J/L	N5BF

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SB ALL @ AMSAT $ANS-076.06
SA AMSAT BACAR MISSION 90/1 A HUGE SUCCESS

HR AMSAT NEWS SERVICE BULLETIN 076.06 FROM AMSAT HQ
SILVER SPRING, MD MARCH 17, 1990
TO ALL RADIO AMATEURS BT

BACAR mission 90/1 was a huge success. Three balloons carried BACAR (BAlloon Carrying Amateur Radio) to a height of nearly 50,000 feet above sea level in what can be described as a flawless mission.

BACAR was equipped with an RTTY telemetry unit providing information such as current altitude and rate of climb. The telemetry transmitter's output was in the 2 meter band. The camera used was a closed circuit monochrome CCD television camera fitted with an 8.5 mm lens. The camera had an automatic gain control circuit which compensated for the variation in light intensities. The video output from the camera was fed into a video transmitter operating on standard UHF channel 35 (583.250 MHz). The transmitter consisted of a crystal controlled oscillator on 48 MHz which was multiplied up to the output frequency. Modulation was applied to the driver and output stages which then drove a co-linear ground plane antenna. The output of the transmitter was 1.7 watts. BACAR was powered by common alkaline batteries.

With an expensive camera on board, special precautions were taken to ensure that BACAR would be recovered. A special release mechanism was used that automatically released BACAR from the balloons 90 minutes after launch. As a further safety precaution, a telecommand receiver was also built into the device.

The local weather bureau provided tracking support and other logistical assistance. The launch went off like clockwork and seconds after BACAR started to ascend, reports of good quality video were received. Later in the flight video reception was reported from as far as Pietersburg, a city over 300 km from the launch site. Reports and video tapes are still being received.

[ANS would like to thank SA-AMSAT for this information]

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